

DR. ROLIN F. BARRETT, P.E.
CONSULTING ENGINEER

BARRETT ENGINEERING

3141 John Humphries Wynd, Suite 280, Raleigh, North Carolina 27612

www.barrettengineer.com

EDUCATION

Doctor of Philosophy, Mechanical Engineering, North Carolina State University, 1965

Master of Science, Mechanical Engineering, North Carolina State College, 1962

Bachelor of Science, Mechanical Engineering, North Carolina State College, 1959

PROFESSIONAL LICENSING

Registered Professional Engineer – North Carolina and Florida

EMPLOYMENT

Consulting Engineer, Barrett Engineering, Raleigh, N.C., 1977 -

Director of Research and Development, Harrington Manufacturing Company, Lewiston,
N. C., 1976 -1977

Assistant Dean of Research, Research Administration, North Carolina State University,
Raleigh, N. C., 1973 -1976

Instructor, Assistant Professor, Associate Professor, Professor; North Carolina State
University, Raleigh, N. C., 1962 -1973

Consulting Engineer, L. E. Wooten and Company, Raleigh, N. C., 1959 -1960

ENGINEERING CONSULTING PRACTICE

The practice was established in 1977, offering engineering services to industries, governmental agencies, insurance companies, attorneys, and individuals. Consultation has been provided on nearly four thousand cases, including motor vehicle accidents, fires and explosions, industrial accidents, guarding of hazardous locations, and some types of structural damage.

BRIEF DESCRIPTION OF ENGINEERING PRACTICE

Almost 2,000 motor vehicle accidents have been analyzed, including incidents involving automobiles, trucks, motorcycles, commercial and residential mowers, construction equipment, aircraft, and boats.

More than 1,000 fires have been analyzed for causes and origins, as well as possible equipment malfunctions and possible violations of codes and standards. Testing has been conducted on numerous electrical items involved in fires.

Industrial equipment accidents associated with construction, textiles, plastic molding, woodworking, food processing, and welding have been examined. Determination of guarding adequacy often has been required in these fields. In addition, accidents involving industrial trucks and conveyors have been studied.

Other engineering analyses have included violent propulsion of bottle stoppers, building damage possibly resulting from military ordnance and commercial blasting, electrocutions following accidental contact with power lines or various types of equipment, malfunctions of compressed gas cylinders, incidents related to the slip resistance of various walking surfaces, failures of hoist mechanisms, chain, and wire rope.

RESEARCH LABORATORY

Laboratory equipment includes a scanning electron microscope and high vacuum evaporator, stereoscopic microscopes, hardness testers, digital oscilloscope, and tensile test apparatus. In addition, there are numerous precision instruments in the laboratory for measuring dimensional values, electrical parameters, forces, gas concentrations, pressures, sound levels, velocities of gases and liquids, temperatures, and weights.

Some portable instruments are the field stereomicroscopes, accelerometers, strain gauge apparatus, radar speed detectors, dynamometers, friction measuring/slip resistance apparatus, and vehicle scales.

The vehicle crash data retrieval system downloads information stored in a vehicle's airbag control module. Computerized motor vehicle accident analysis programs aid in preparation of accurate drawings of accident sites and assist in the analysis of vehicle positions, velocities, and accelerations.

AIRPLANES

A Cessna Centurion and a Rockwell Turbo Twin Commander facilitate mid-range and long-range travel associated with engineering consulting.

Dr. Barrett holds a commercial pilot's license with an instrument rating and has approximately 3,000 hours as pilot-in-command.

CONSULTING FEE

The current charge for engineering consulting services is \$320.00 per hour plus expenses.

PREVIOUS DUTIES AND RESPONSIBILITIES

DUTIES AS FACULTY MEMBER, NORTH CAROLINA STATE UNIVERSITY

Taught and developed graduate and undergraduate courses in combustion, heat transfer, thermodynamics, kinematics, statics, dynamics, strength of materials, mechanical engineering design, and automotive engineering.

Designed and conducted research in areas of turbine engine propulsion, high-speed mass transportation, sonar systems, sonic boom simulation, motor vehicle safety inspections, mechanized roadside litter removal, bio-engineering, and societal costs of automobile accidents.

DUTIES AS ASSISTANT DEAN OF RESEARCH, NORTH CAROLINA STATE UNIVERSITY

Formulated policies on matters regarding research
Acted as liaison between granting agencies and the University
Reviewed research proposals for outside funding
Prepared reports and publications
Negotiated terms of contracts and grants
Executive Secretary, Patent Committee
Executive Secretary, Overhead Allocations Committee
Executive Secretary, Committee on the Use of Human Subjects in Research
Executive Secretary, Animal Care Committee

DUTIES AS DIRECTOR OF RESEARCH AND DEVELOPMENT, HARRINGTON MANUFACTURING COMPANY

Evaluated structural and mechanical aspects of curing barns, forklifts, tree shears, and other equipment
Conducted heat loss evaluation of buildings
Conducted analytical and experimental stress analyses on various products
Designed factory-built, wooden-structure houses with completed exteriors and interiors including wiring, drywall, fireplaces, lighting fixtures, heating and air conditioning, plumbing, and appliances
Designed mechanisms for constructing, transporting, and erecting wooden structure, sectional house
Directed construction, transportation and placement of factory-built homes on permanent foundations at sites

MEMBERSHIP IN PROFESSIONAL ORGANIZATIONS

American Society of Mechanical Engineers—Chairman, Eastern North Carolina Section, 1975 -1976; Secretary, U.S. Region IV, 1976-1981

Society of Automotive Engineers

American Institute of Aeronautics and Astronautics—Chairman, Carolina Section, 1969 -1970

American Society for Metals

American Society for Testing and Materials

American Society of Heating, Refrigerating and Air-Conditioning Engineers

National Fire Protection Association

National Society of Professional Engineers

Sigma Xi, The Scientific Research Society of North Carolina

Transportation Research Board of National Academy of Sciences/National Academy of Engineering, Past Committee Member

SOME PERTINENT COURSES AND SEMINARS COMPLETED FOR CONTINUED PROFESSIONAL DEVELOPMENT

Guide to the National Electric Code

OSHA Construction Outreach: OSHA 200

Conference on Civil CAD and GPS

AWARDS AND HONORS

American Society of Mechanical Engineers—Centennial Medallion

Society of Automotive Engineers—Ralph Teetor Award

Archives of American Mathematics, Center for American History, University of Texas at Austin – Inclusion of Rolin F. Barrett’s “Tables of Modified Struve Functions of Orders Zero and Unity.” AAM is the sole archival repository in the United States “dedicated to collecting and preserving the paper and records of mathematicians..., the premier resource for researchers seeking primary sources in mathematics.”

Shell Oil Fellowship